

What is claimed is:

1. An article of manufacture, comprising:
an energy absorber comprising an extruded plastic first layer having a first plurality of corrugations, wherein the length of the corrugation is longer than its widest cross-sectional width.
2. The article of claim 1, wherein the first layer further comprises a second plurality of corrugations separated from the first plurality of corrugations by a hinge.
3. The article of claim 2, wherein individual corrugations of the first plurality are nested within individual corrugations of the second plurality after actuation of the hinge.
4. The article of claim 1, wherein the first and second pluralities of corrugations differ from each other in at least one structural or compositional aspect.
5. The article of claim 4, wherein the at least one structural aspect is select from height, base width, floor width, average width, cross-sectional shape, base layer thickness, wall thickness, floor thickness or combinations thereof.
6. The article of claim 5, wherein cross-sectional shape is selected from square waveform, positive draft, negative draft, sinusoidal waveform, open loop shape, closed loop shape or combinations thereof.
7. The article of claim 5, wherein the differing structural characteristic results in frictional energy dissipating during an impact.
8. The article of claim 7, wherein the differing structural characteristic is depth.
9. The article of claim 4, wherein the first and second pluralities differ in composition.
10. The article of claim 1, further comprising a second layer having a second plurality of corrugations and wherein individual corrugations of the first plurality are nested within individual corrugations of the second plurality.
11. The article of claim 10, wherein the second layer is an extruded plastic second layer.
12. The article of claim 11, wherein the first and second layers differ from each other in at least one structural or compositional aspect.
13. The article of claim 12, wherein the at least one structural aspect is select from height, base width, floor width, average width, cross-sectional shape, base layer thickness, wall thickness, floor thickness or combinations thereof.

14. The article of claim 13, wherein cross-sectional shape is selected from square waveform, positive draft, negative draft, sinusoidal waveform, open loop shape, closed loop shape or combinations thereof.
15. The article of claim 13, wherein the differing structural characteristic results in frictional energy dissipating during an impact.
16. The article of claim 15, wherein the differing structural characteristic is depth.
17. The article of claim 12, wherein the first and second layers differ in composition.
18. An energy absorbing structure, comprising:
a plastic energy absorber comprising a first layer having a first plurality of surface features and a second layer with a second plurality of surface features wherein the surface features of one layer are nested within the surface features of the other layer wherein the first and second layers differ from each other in at least one structural or compositional aspect.
19. The article of claim 12, wherein the at least one structural aspect is select from height, base width, floor width, average width, cross-sectional shape, base layer thickness, wall thickness, floor thickness or combinations thereof.
20. The article of claim 13, wherein cross-sectional shape is selected from square waveform, positive draft, negative draft, sinusoidal waveform, open loop shape, closed loop shape or combinations thereof.
21. The article of claim 13, wherein the differing structural characteristic results in frictional energy dissipating during an impact.
22. The article of claim 15, wherein the differing structural characteristic is depth.
23. The article of claim 12, wherein the first and second layers differ in composition.
24. A method of manufacturing an energy absorber, comprising:
nesting individual surface features of a first plurality of surface features into individual surface features of a second plurality of surface features, wherein the first and second layers differ from each other in at least one structural or compositional aspect.
25. The method of claim 24, further comprising extruding a first layer comprising the first plurality of surface features.
26. The method of claim 25, further comprising extruding a second layer comprising the second plurality of surface features.

Express Mail Label No. EL 994649321 US

27. The method of claim 24, further comprising extruding a first layer comprising the first and second plurality of surface features.
28. The method of claim 27, wherein the nesting step comprises actuating a hinge that separates the first plurality and second plurality of surface features.
29. A method of manufacturing an energy absorber, comprising:
extruding a first layer comprising a first plurality of surface features.
30. The method of claim 29, further comprises extruding a first layer comprising a first and a second plurality of surface features, wherein the first and second plurality of surface features are separated by a hinge.
31. The method of claim 29, further comprising forming a second layer comprising a plurality of surface features.
32. The method of claim 30, further comprising nesting individual surface features of the first plurality of surface features into individual surface features of the second plurality of surface features.
33. The method of claim 31, wherein the first and second plurality of surface features are formed with at least one differing structural or compositional aspect.